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Purple Urine Bag Syndrome – A Spot Diagnosis

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Abstract

Purple urine bag syndrome is a rare disease commonly associated with urinary tract infection. Generally, it is seen in geriatric patients who are chronically debilitated with long-term indwelling urinary catheters. Management of the disease must involve diagnosis of urinary tract infection and treatment of the same with antibiotics and treatment of associated constipation.

Keywords: Geriatric, purple urine bag syndrome, urinary tract infection,

INTRODUCTION

Purple urine bag syndrome (PUBS) was first reported in the year 1978.^[1] The condition is associated with urinary tract infection and is seen commonly in geriatric patients.

PUBS is more common in women and is associated with alkaline urine, constipation, use of plastic urinary catheter and bag, and long-term hospitalization.^[2] Here, we report a case of PUBS who responded well to antibiotics and laxatives. Our aim is to raise awareness of this disease.

CASE REPORT

A 78-year-old woman, a known case of diabetes mellitus and hypertension on regular treatment, came with complaints of constipation with fever and generalized weakness. She underwent computed tomography (CT) abdomen which was suggestive of acute colonic pseudo-obstruction. Due to the ongoing COVID pandemic, she also underwent high-resolution CT thorax which showed atypical viral pneumonia; hence, she was admitted for COVID treatment. Since she had difficulty in passing urine and was unable to walk around, Foley's catheter was inserted under aseptic precautions. She recovered from COVID and was discharged with Foley's *in situ* as she had excessive tiredness and was unable to move around. She was lost in follow-up since then. Two months later, she came back with complaints of burning sensation at Foley's site, purple discoloration of urine, and constipation. The urine collected in the bag was purple [Figure 1], and this led to the diagnosis of PUBS. Foley's catheter

was removed, urine was sent for culture and sensitivity, a bladder wash was given with Betadine and normal saline, and a new silicone Foley's catheter was inserted. A urine culture report showed *Escherichia coli*. She was treated with nitrofurantoin 400 mg BD. Her constipation was simultaneously treated with laxatives and prucalopride 2 mg OD. She improved with the above treatment, and the urine color reverted to normal.

DISCUSSION

The urine bag shows discoloration due to the presence of colored pigments which precipitate and react with synthetic materials of the catheter and urinary bag.^[3] Some experts believe that purple urine is due to a mixture of indigo and indirubin, derived from tryptophan metabolites. Tryptophan is metabolized in the gastrointestinal tract by gut bacteria which results in the production of indole that is absorbed into the portal circulation. The liver converts indole to indoxyl sulfate. Most indoxyl sulfate is excreted into the urine and digested, by the enzyme indoxyl sulfatase produced by some bacteria, to indoxyl. Indoxyl converts to indigo and indirubin in alkaline urine which are blue and red, respectively. These two colors then mix to form a purple color.^[4]

It is distressing for family, friends, and health-care workers who are unaware of this phenomenon and tend to become

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Figure 1: Purple urine in urosac bag

unusually alarmed because of discoloration of the urine. To increase awareness, we reiterate here the risk factors and management of PUBS. Risk factors include female gender, increased dietary tryptophan, alkaline urine, constipation, chronic catheterization, high urinary bacterial load, renal failure, and the use of a polyvinyl chloride plastic catheter,^[1] while management includes catheter change and administration

of appropriate antimicrobial therapy to treat the underlying bacterial infection. Regular catheter change may help even in the prevention of PUBS.

We hope that raising awareness about PUBS will help in early diagnosis and treatment of the same. As this condition is common in the geriatric group of patients who are hospitalized long-term, knowledge about the same will help health-care workers to treat this condition easily.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Khan F, Chaudhry MA, Qureshi N, Cowley B. Purple urine bag syndrome: An alarming hue? A brief review of the literature. *Int J Nephrol* 2011;2011:419213.
2. Lin HH, Li SJ, Su KB, Wu LS. Purple urine bag syndrome: A case report and review of the literature. *J Intern Med Taiwan* 2002;13:209-12.
3. Lin CH, Huang HT, Chien CC, Tzeng DS, Lung FW. Purple urine bag syndrome in nursing homes: Ten elderly case reports and a literature review. *Clin Interv Aging* 2008;3:729-34.
4. Su FH, Chung SY, Chen MH, Sheng ML, Chen CH, Chen YJ, *et al.* Case analysis of purple urine-bag syndrome at a long-term care service in a community hospital. *Chang Gung Med J* 2005;28:636-42.